

Appl. No. 09/833,017
Amdt. Dated October 16, 2003
Reply to Office Action f July 16, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 - 22. (Canceled).

23. (Currently amended) The polypeptide of claim ~~22-24~~ comprising a *S.mutans* competence signal peptide having SEQ ID NO: 4.

24. (Currently amended) ~~A The polypeptide of claim 23 comprising all or part of an amino acid sequence in {SEQ ID NO:2} or {SEQ ID NO:4} and having *S.mutans* competence signal peptide activity.~~

25. (Currently amended) ~~A polypeptide variant or a peptide mimetic of the polypeptide of claim 24~~ SEQ ID NO: 2 or SEQ ID NO: 4 having at least 30% sequence identity to SEQ ID NO: 2 and having competence signal peptide activity or having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

26. (Currently amended) The polypeptide variant of claim ~~24~~ or 25 which is recombinantly produced.

27. (Currently amended) ~~A polypeptide comprising a sequence~~ The polypeptide variant of claim 25 having greater than 30%, 50% or 60% sequence identity to SEQ ID NO: 2 or SEQ ID NO: 4 the polypeptide of claim 24 or 25.

28. (Currently amended) The polypeptide variant of claim ~~24~~ or 25, isolated from *S.mutans*.

29-37. (Canceled).

38. (Currently amended) ~~A The polypeptide of claim 24 having an amino acid sequence wherein 1 - 15 amino acids of the polypeptide of claim 24 have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 or SEQ ID NO: 4.~~

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39. (Currently amended) ~~A-The polypeptide of claim 38 wherein 2 - 5 amino acids of the polypeptide of claim 24 have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 or SEQ ID NO: 4.~~

40. (Currently amended) ~~A-The polypeptide of claim 38 wherein 6 - 10 amino acids of the polypeptide of claim 24 have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 or SEQ ID NO: 4.~~

41. (Currently amended) ~~A-The polypeptide of claim 38 wherein 10 - 15 amino acids of the polypeptide of claim 24 have been removed from the N- and/or COOH terminal of SEQ ID NO: 2 or SEQ ID NO: 4.~~

42. (Currently amended) A synthetic polypeptide having competence signal peptide activity and ~~comprising the 21-amino acid sequence of SEQ ID NO:464.~~

43. (Currently amended) A polypeptide having an amino acid sequence wherein 1 - 15 amino acids of ~~the polypeptide of claim 24~~ amino acid sequence of SEQ ID NO: 2 or SEQ ID NO: 4 have been modified to include up to 1 point mutation per each 10 amino acids ~~of SEQ ID NO: 2 or SEQ ID NO: 4, or a portion thereof.~~

44. (Currently amended) The polypeptide of claim 43 wherein each said mutation ~~comprise~~ comprises substitution with another amino acid.

45. (New) The polypeptide variant of claim 25 having greater than 60% sequence identity to SEQ ID NO: 2.

46. (New) The polypeptide variant of claim 45 having greater than 90% sequence identity to SEQ ID NO: 2.

47. (New) The polypeptide of claim 24 or the polypeptide variant of claim 25 having competence signal peptide activity.

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48. (New) The polypeptide of claim 24 or the polypeptide variant of claim 25 having activity for inhibiting the competence signal activity of the polypeptide of SEQ ID NO: 2 or 4.

49. (New) The polypeptide of claim 47 capable of binding to a bacterial histidine kinase cell surface receptor and activating said kinase.

50. (New) The polypeptide of claim 47 capable of promoting biofilm formation of said bacteria.

51. (New) The polypeptide of claim 47 capable of promoting acid tolerance in said bacteria.

52. (New) The polypeptide of claim 47 wherein said bacteria comprises *Streptococcus mutans*.

53. (New) The polypeptide of claim 48 capable of competitively inhibiting the binding of a peptide having SEQ ID NO. 4 to a bacterial histidine kinase cell surface receptor.

54. (New) The polypeptide of claim 48 capable of inhibiting biofilm formation of said bacteria.

55. (New) The polypeptide of claim 48 capable of inhibiting acid tolerance in said bacteria.

56. (New) The polypeptide of claim 48 wherein said bacteria comprises *Streptococcus mutans*.

57. (New) The polypeptide variant of any one of claims 25, 27, 45 and 46 comprising at least one modification chosen from the group consisting of

a N-terminal modification,

a COOH-terminal modification,

at least one amino acid is a D-amino acid, and

at least one chemically modified amino acid.